

In the Specification

Please replace the first section title and paragraph [0001] with the following:

TECHNICAL FIELD OF THE INVENTION

[0001] The present ~~invention~~ disclosure deals with Data Bases area. The present ~~invention~~ disclosure deals more particularly with a technical process of organization of a data base.

Please replace paragraphs [0002] – [0004] with the following:

BACKGROUND

[0002] ~~The anterior art knows, by the demand of the american patent US 2004/0098363 (IBM), a~~
A hierarchical storage of data is known. The data objects are stored in a hierarchy of storage and some tables of content containing some entries are generated. The place of the content tables is dynamically dealt with.

[0003] ~~The anterior art knows also, by the demand of european patent EP 1,423,799 (Lafayette Software)~~ some process to organize some data and realize requests in a data bases system. The informations are organized in a system of data bases with some groups of given attributes and words of collection of data assigned to attributes by associating a list of identifiers of graphs of data with an entry of thesaurus.

[0004] ~~The anterior art knows also, by the demand PCT WO 04/25507 (Karmic Software Research), which matches the french patent demand FR 2,844,372, a process of organization of a numerical data base under a tractable form. More precisely, this demand claims a process of organization of a numerical data base under a tractable form, including some steps of modification of a main numerical data base by addition or removal or modification of a record of the main base and of the reading steps of the main data base, characterized in that:~~

Please replace paragraphs [0011] - [0014] with the following:

[0011] ~~One also knows, by the american U.S. Pat. No. 6,292,795 (IBM), an index file system and a mechanism to reach the data of such a system.~~

[0012] ~~Finally, one also knows in the anterior art the american U.S. Pat. No. 5,826,262 (IBM) a process of parallel building of radix trees~~ is also known.

DESCRIPTION OF THE INVENTION SUMMARY

[0013] The technical problem the present ~~invention~~ disclosure intends to solve is the one consisting in improving the performances of the requests in a data base. Indeed, the process of the anterior art use huge resources of the computers, processors and hard drives resources.

[0014] In this purpose, the present ~~invention~~ disclosure concerns, in the largest meaning, a process of organization of a relational data base meant to be used in a computer or computers system, containing at least a processor and some memory, characterized in that it includes the steps consisting in:

Please replace paragraphs [0021] and [0022] with the following:

[0021] The present ~~invention~~ disclosure also deals with a data base organized as defined above.

[0022] The present ~~invention~~ disclosure also deals with the process of a data base organized as defined above, characterized in that it includes

Please delete paragraph [0026] and insert the following section title:

~~[0026] One will better understand the invention thanks to the description, made below for information only, of a mode of realization of the invention, in reference to the annexed figures:~~

BRIEF DESCRIPTION OF THE DRAWINGS

Please insert the following section title between paragraphs [0030] and [0031]:

DETAILED DESCRIPTION

Please replace paragraph [0061] with the following:

[0061] The point is that a clause <<Between>> may be treated with an important saving of readings on the storage facility. For instance, if one looks for the set of the lines where appear a date between [19931117, 19950225], the number of requested readings of radix trees is $14+1+1+1+25=42$ (because $[19931117, 19950225]=[19931117, 19931130] \cup [199312, 199312] \cup [1994, 1994] \cup [199501, 199501] \cup [19950201, 19950225]$), instead of 466.

Please replace paragraph [0072] with the following:

[0072] ~~Remark: it~~ It may so happen that, as the data base is transformed, a word appears in or disappears from the thesaurus (for instance when one takes off or adds lines to the table). One

could then think that the complete rewriting of the column is necessary. It is actually not the case: rather than storing a ~~sorted~~ sorted thesaurus, one may store it unsorted and record on the side a permutation allowing one to find back the lexicographical order of the words composing it. This is why whenever a word appears in the thesaurus, the complete rewriting of the column is not necessary. We rewrite in this case the permutation allowing one to retrieve the lexicographical order of the words rather than the thesaurus itself.

Please replace paragraph [0086] with the following:

[0086] Let us suppose that a table is constituted of several millions of lines but that some of its attributes could take only a few different values. (for instance a data base containing genealogy data may contain the names of the persons, for each of them his birth country, his birth continent, the birth country and continent of his mother and first child if he ever exists. Instead of filling all the columns, it is considered as very economical to store in such a case the countries in a table separated from the main table and the continents in a third table. The main table contains then at each line a value (a foreign key) giving [[an]] a line identifier (a primary key value) of the <<country>> table and the table <<country>> contains, at each of its lines, a value (a foreign key) identifying one of the lines of the table <<continent>> (primary key).

Please replace paragraphs [0108] - [0110] with the following:

[0108] As explained above, each of these tables is considered as an expansion table, which means that the table joints are irrelevant for such a table. A request involves usually several tables.

[0109] ~~But a request involves usually several tables. How to choose the expansion table in which the request should be solved?~~

[0110] The tables involved in the request are all developed in [[an]] a nonempty set, say T.

Please replace paragraph [0118] with the following:

[0118] Let us take back the example given in the section dedicated to the ~~macro-words~~ macro-words. This column has been generated by enriching the vocabulary of the truncations of its words of length 4 and 6. If we look for the line indexes whose values are between [19931117, 19950225], it suffices to split the interval in: [19931117, 19950225]=[19931117, 19931130] U [199312, 199312] U [1994, 1994] U [199501, 199501] U [~~19950201~~ 19950201, 19950225].

Please replace paragraphs [0140] and [0141] with the following:

[0140] For instance, FIG. [[3]] 4 shows the computation of Not T when the expansion table T belongs to has a maximal line index of 13.

[0141] The initial tree is presented FIG. [[3]] 4 and the transformed tree is presented FIG. [[4]] 5.

Please delete paragraph [0144] and replace paragraph [0146] with the following:

[0144] ~~How can we solve this request?~~

[0145] Let us denote by T_c and T_d the thesauruses of the columns t.c et t.d.

[0146] We look for the lines such that at these lines, $t.c > t.d$. ~~Here is how to process.~~ For each word of the thesaurus T_c , we compute the radix tree r of the interval $[m_d, w']$ where w' designates the biggest word of T_d lower than w . Then by computing a \llcorner and \lrcorner between r et and the radix tree of w , we obtain a radix tree t_w .

Please replace paragraph [0148] with the following:

[0148] It is clear that the trees t_w are not meant to be computed independently one from the others. Since the words w are read in the lexicographical order, ~~it is suffices~~ sufficient to unite t_w to the tree corresponding to the addition of the words between w and the next word $[[in]]$.

Please replace paragraphs [0153] and [0154] with the following:

[0153] ~~What is a correlated sub-request?~~ An example of ~~such a request~~ a correlated sub-request is given by the request #17 of the TPC. This request is:

```
select
sum(l_extendedprice) / 7.0 as avg_yearly
from
    lincitem
    part
where
    p_partkey = l_partkey
    and p_brand = '[BRAND]'
```

```

and p_container = '[CONTAINER]'
and l_quantity < (
    select
        0.2 * avg(l_quantity)
    from
        lineitem
    where
        p_partkey = p_partkey

```

[0154] In this request, one has to realize the computation of the sub-request, [[an]] and take in account the requested conditions of the main request (because the p_partkey of the sub-request belongs to the main clause <<where>>).

Please replace paragraph [0161] with the following:

[0161] The ~~invention~~ is embodiments described above are by way of example. It is clear that the man of the art is able to realize different versions of the ~~invention~~ embodiments without getting out the scope of this patent.